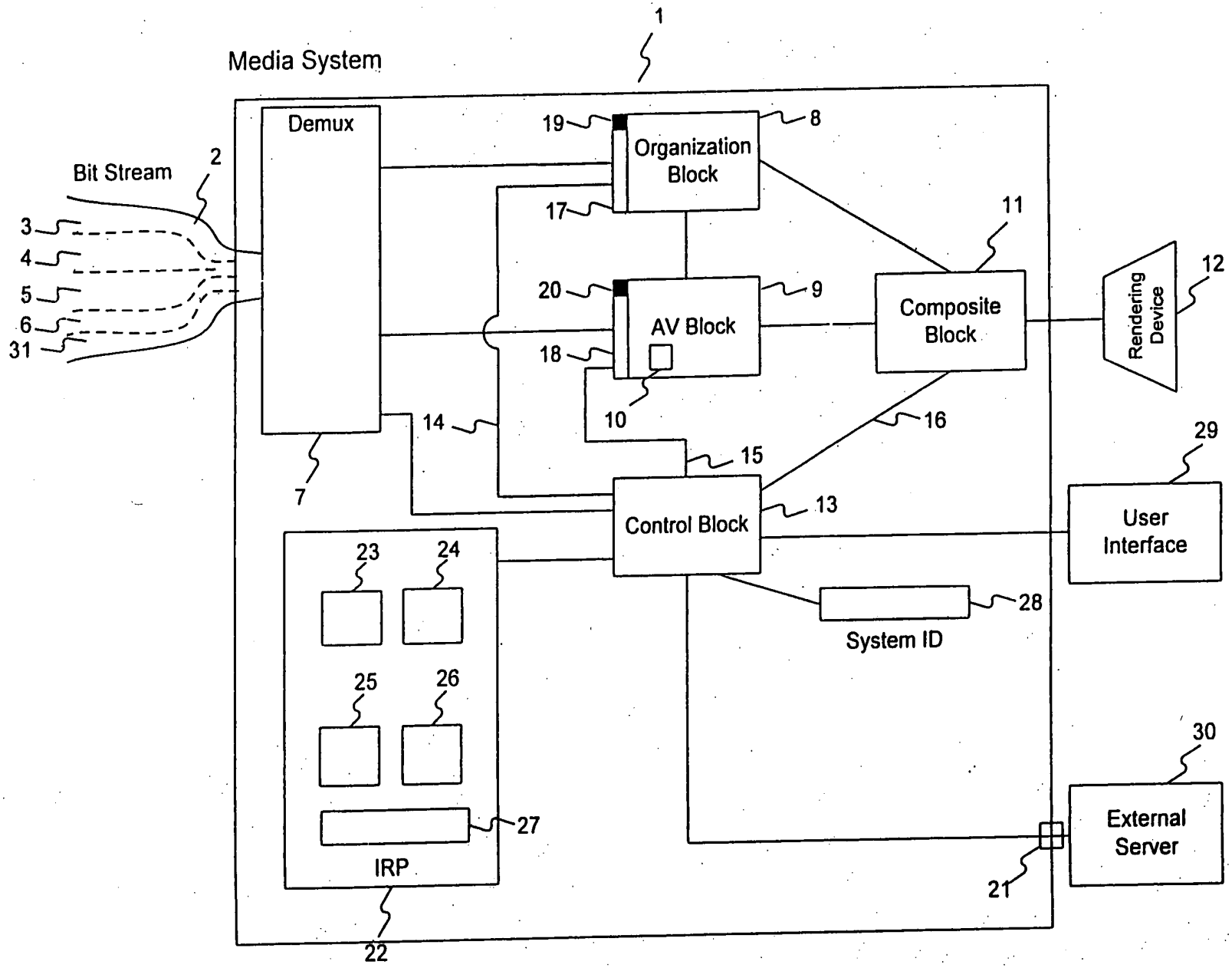


Fig. 1

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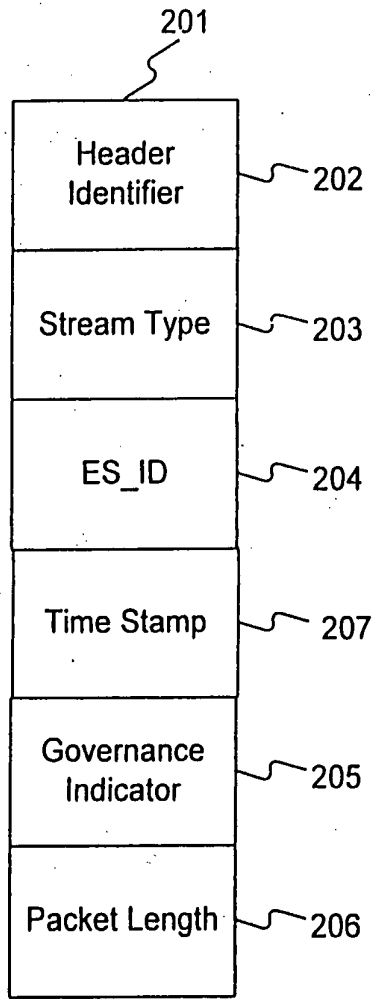
201
Header Identifier
202
Stream Type
203
ES_ID
204
Time Stamp
207
Governance Indicator
205
Packet Length
206

Fig. 2

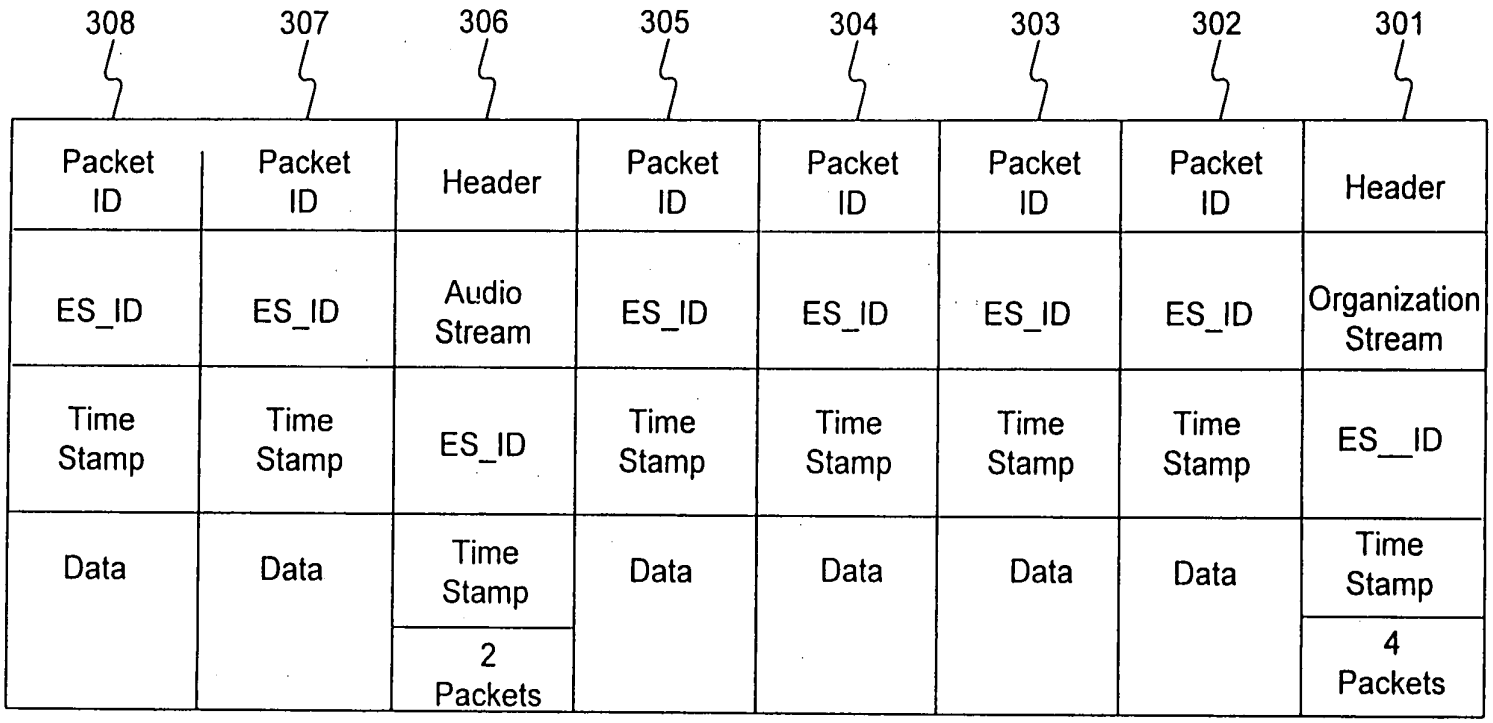
308
307
306
305
304
303
302
301
Packet ID
Packet ID
Header
Packet ID
Packet ID
Packet ID
Packet ID
Header
ES_ID
ES_ID
Audio Stream
ES_ID
ES_ID
ES_ID
ES_ID
Organization Stream
Time Stamp
Time Stamp
ES_ID
Time Stamp
Time Stamp
Time Stamp
Time Stamp
ES__ID
Data
Data
Time Stamp
Data
Data
Data
Data
Time Stamp
2 Packets
4 Packets

Fig. 3

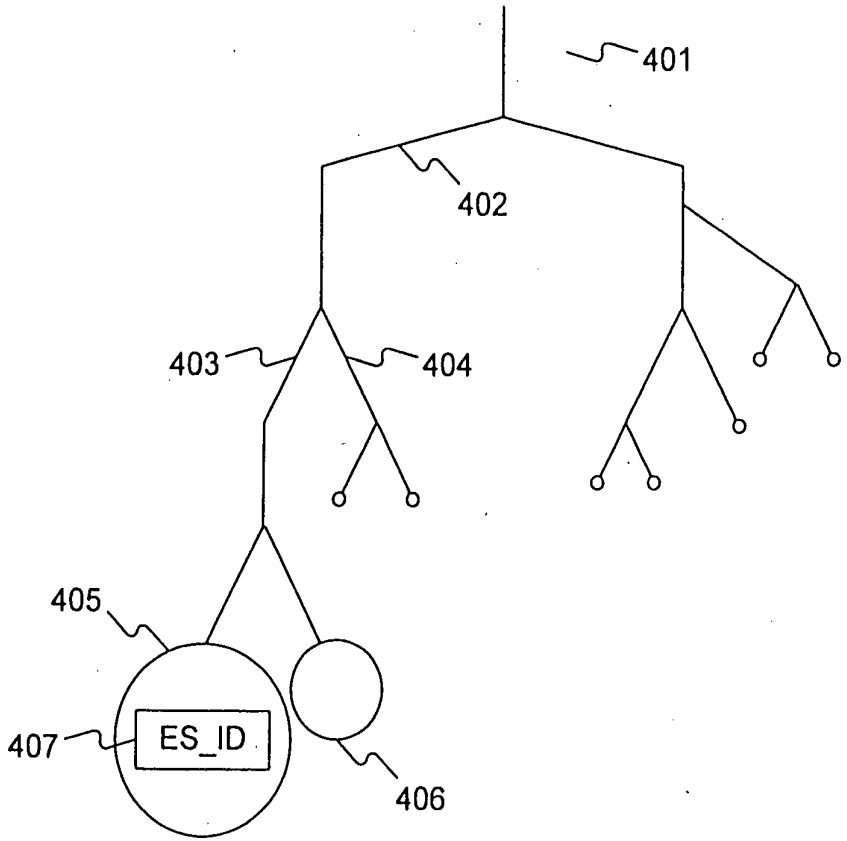


Fig. 4

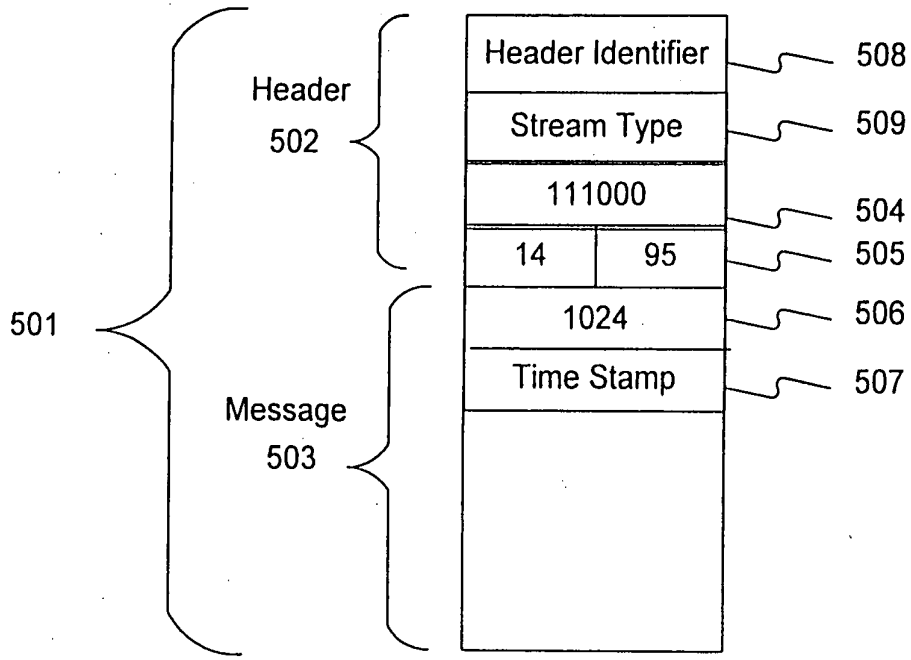
Control Message
Header Identifier
Stream Type
111000
14
95
1024
Time Stamp
Header
502
Message
503
501
508
509
504
505
506
507

Fig. 5

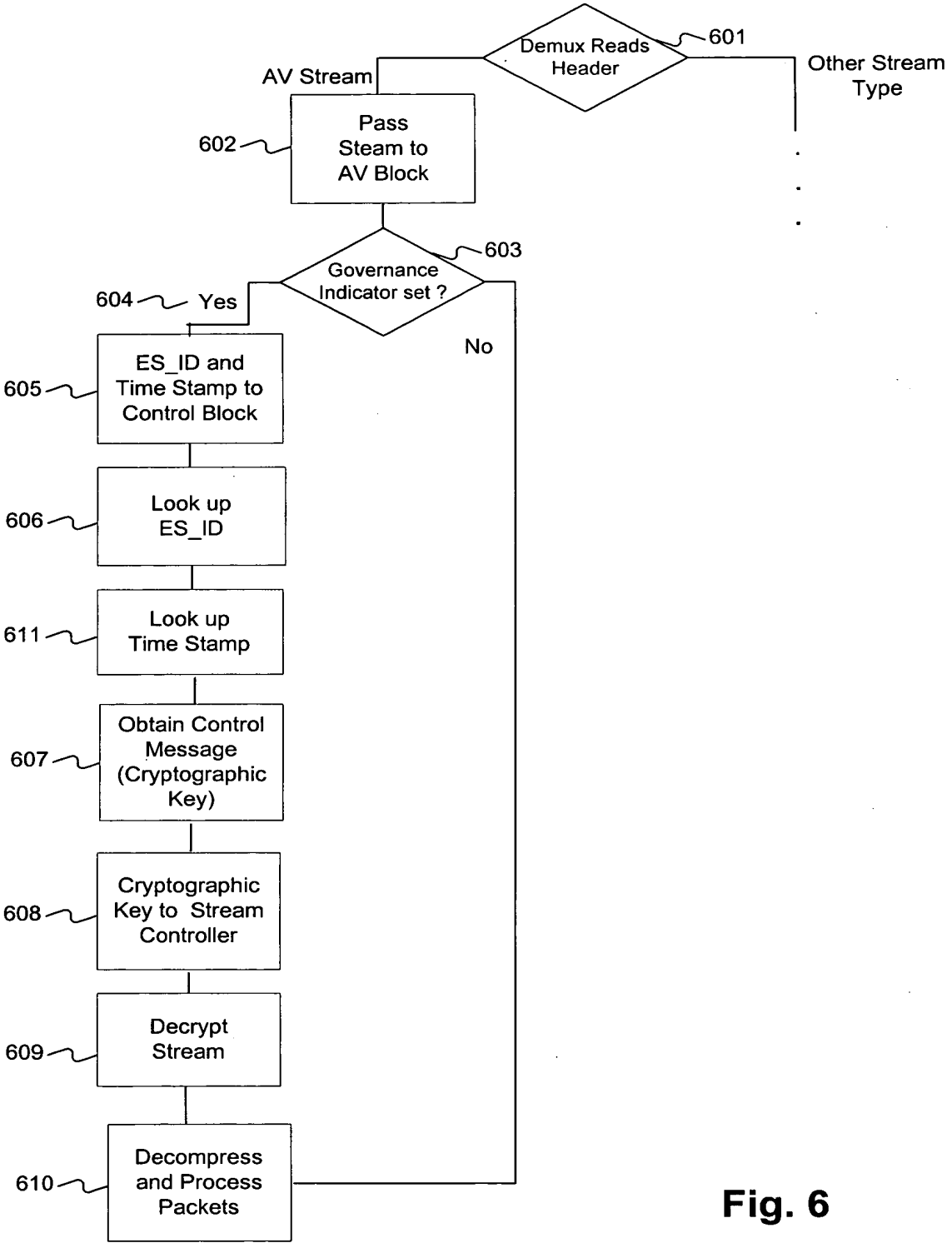
Demux Reads Header
601
AV Stream
Other Stream Type
Pass Steam to AV Block
602
Governance Indicator set ?
603
604
Yes
No
ES_ID and Time Stamp to Control Block
605
Look up ES_ID
606
Look up Time Stamp
611
Obtain Control Message (Cryptographic Key)
607
Cryptographic Key to Stream Controller
608
Decrypt Stream
609
Decompress and Process Packets
610

Fig. 6

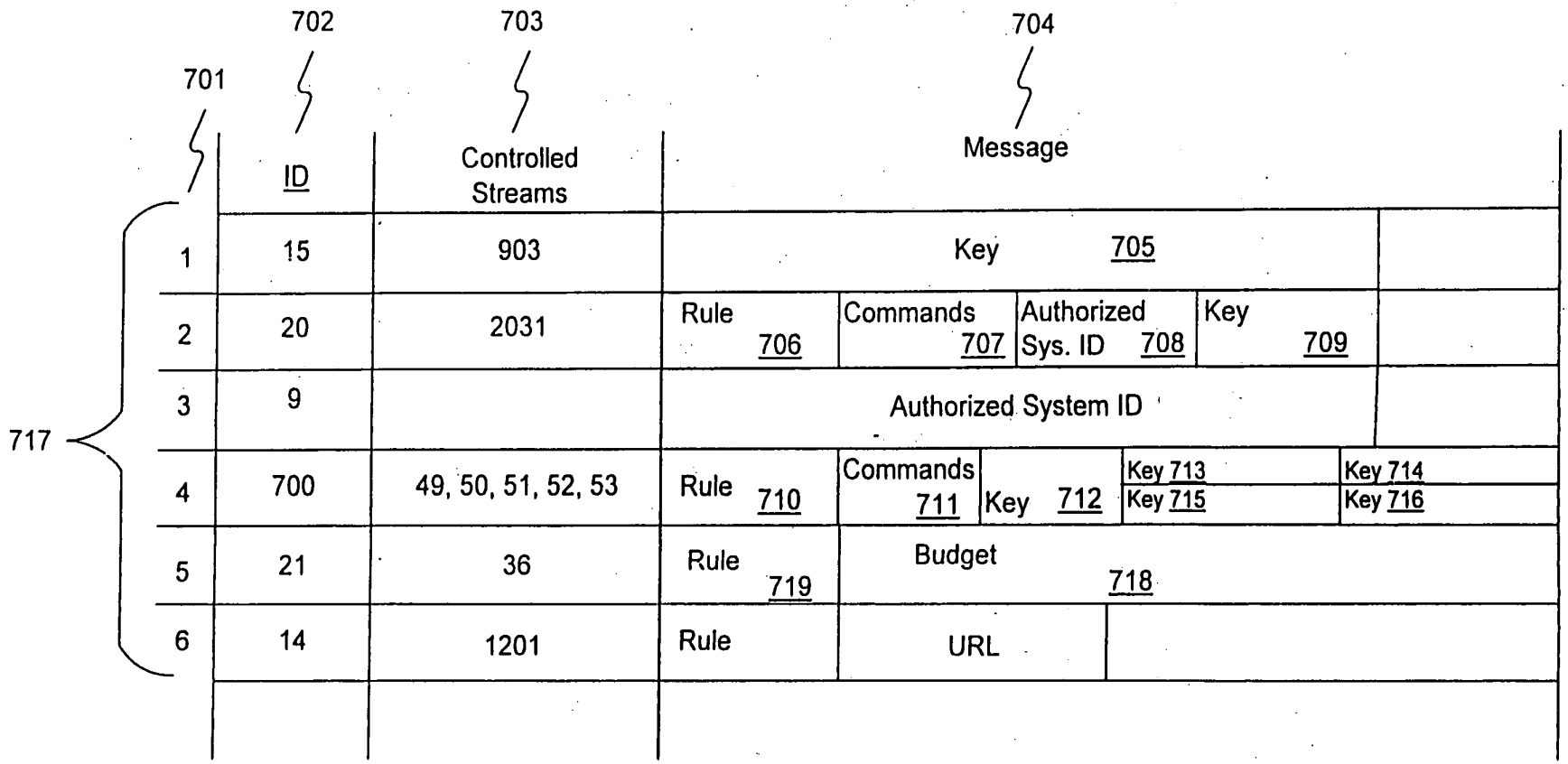
701
702
703
704
ID
Controlled Streams
Message
717
1
15
903
Key 705
2
20
2031
Rule 706
Commands 707
Authorized Sys. ID 708
Key 709
3
9
Authorized System ID
4
700
49, 50, 51, 52, 53
Rule 710
Commands 711
Key 712
Key 713
Key 714
Key 715
Key 716
5
21
36
Rule 719
Budget 718
6
14
1201
Rule
URL

Fig. 7

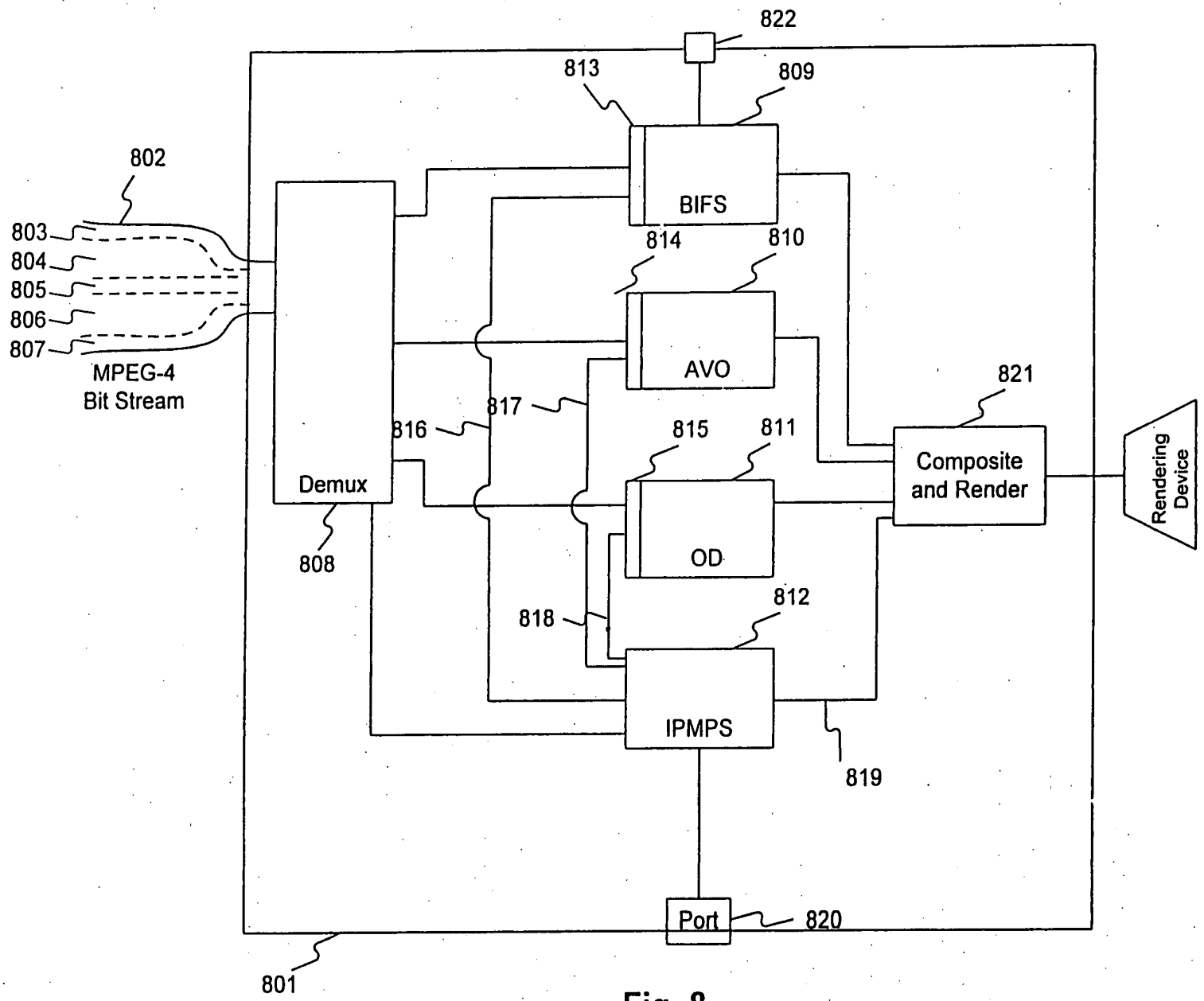


Fig. 8

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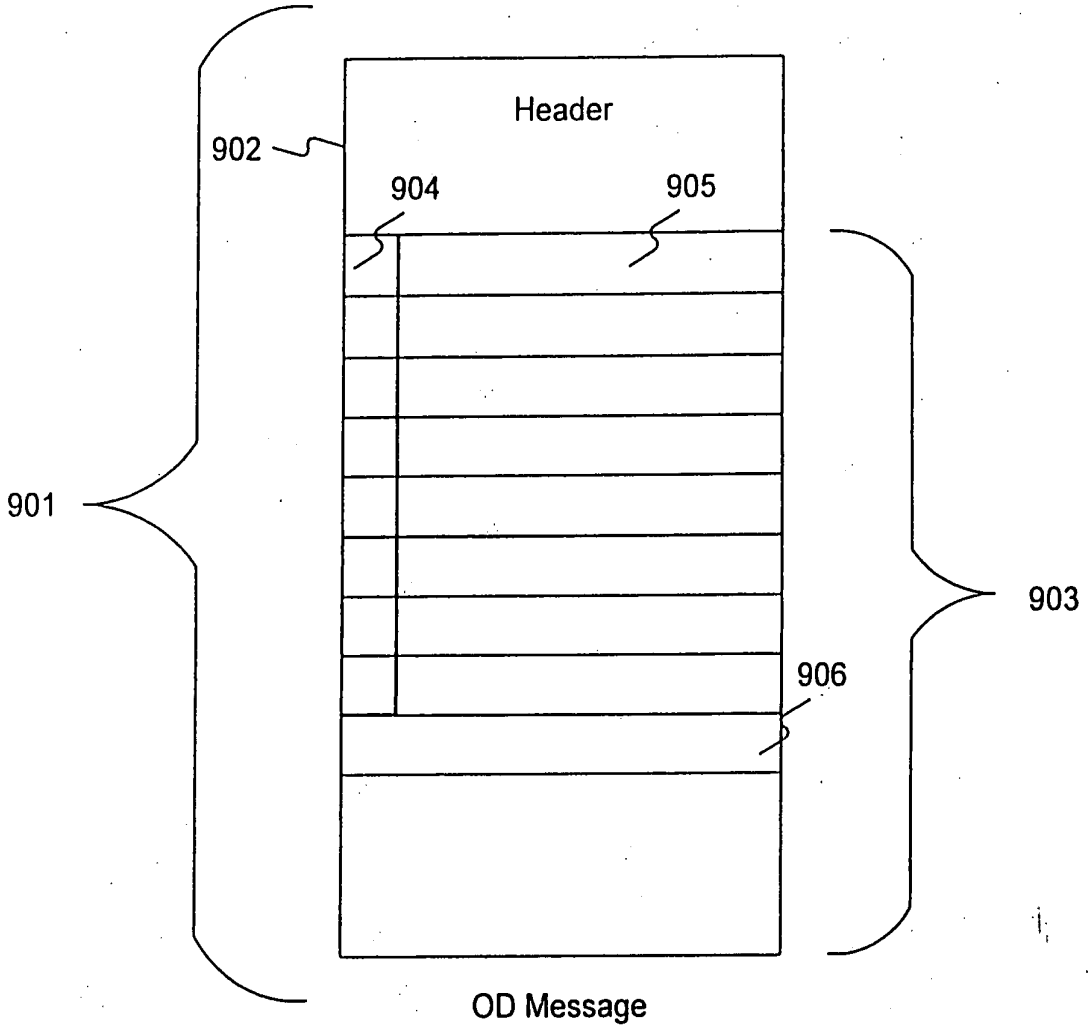


Fig. 9

IPMP Table

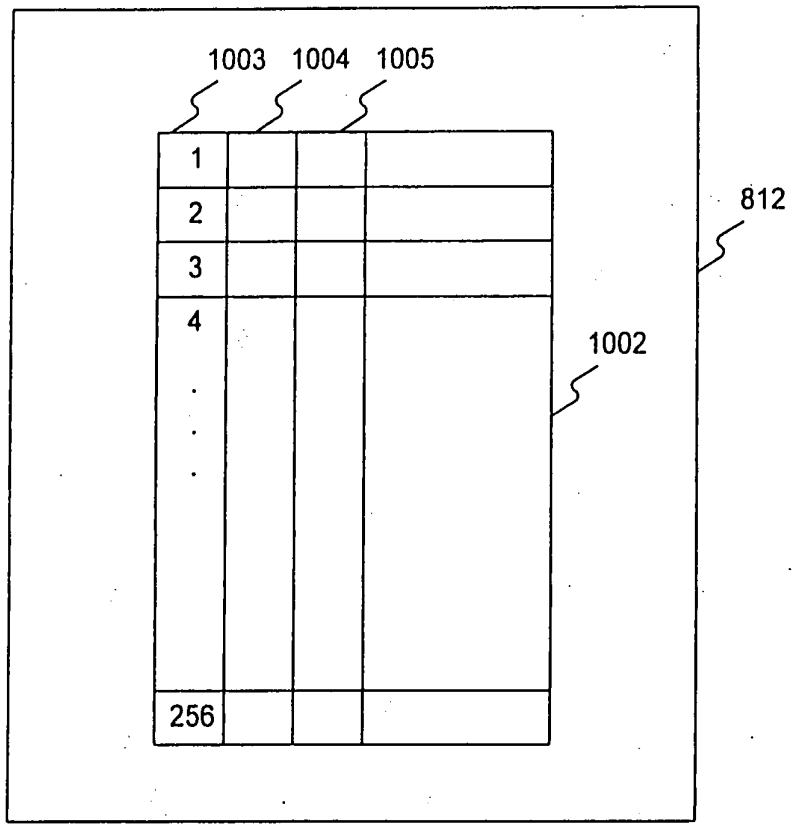


Fig. 10

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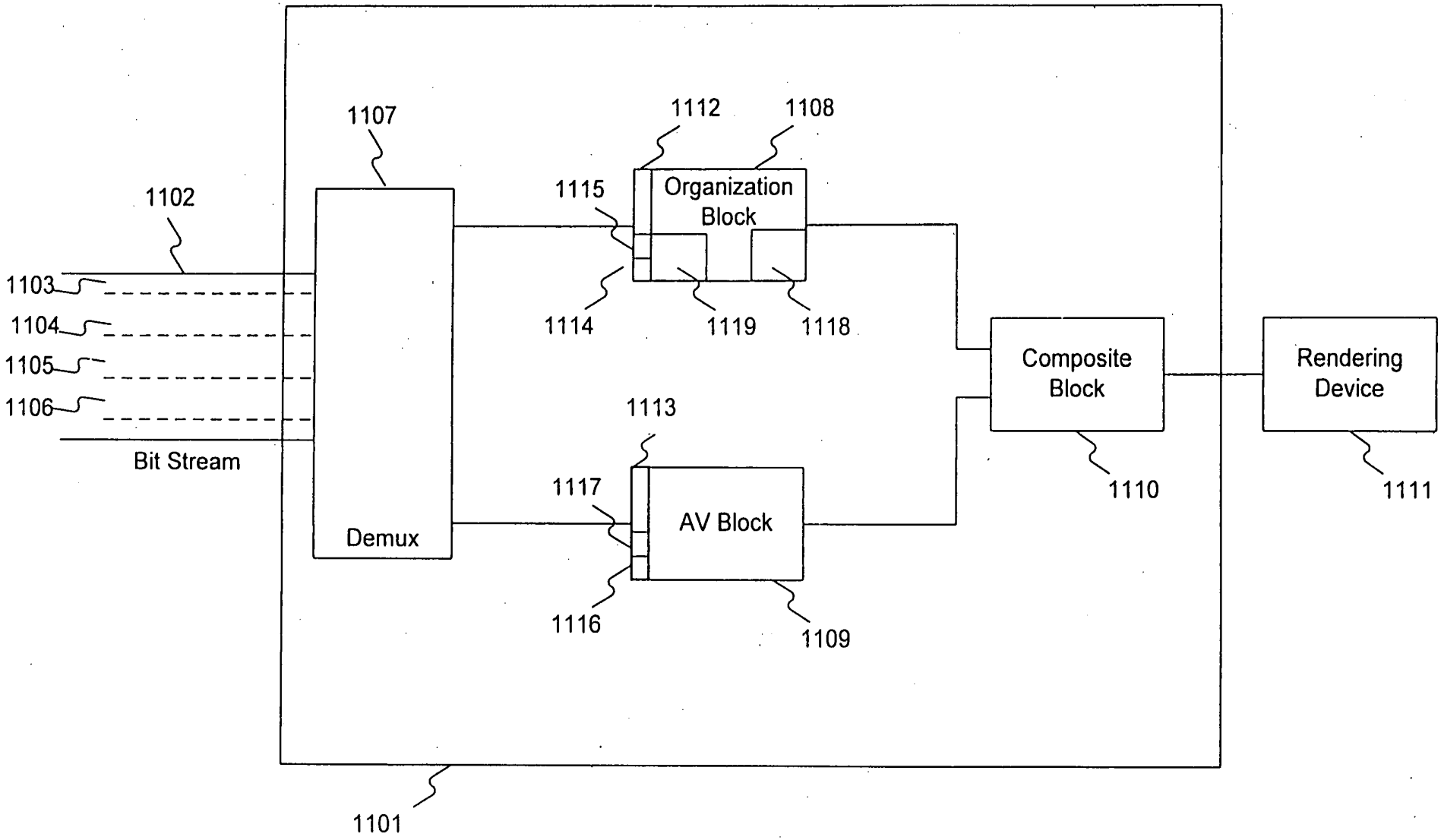

1107
1112
1108
1102
1115
Organization Block
1103
1104
1105
1106
Bit Stream
1114
1119
1118
Composite Block
Rendering Device
1113
1117
AV Block
Demux
1110
1111
1116
1109
1101

Fig. 11

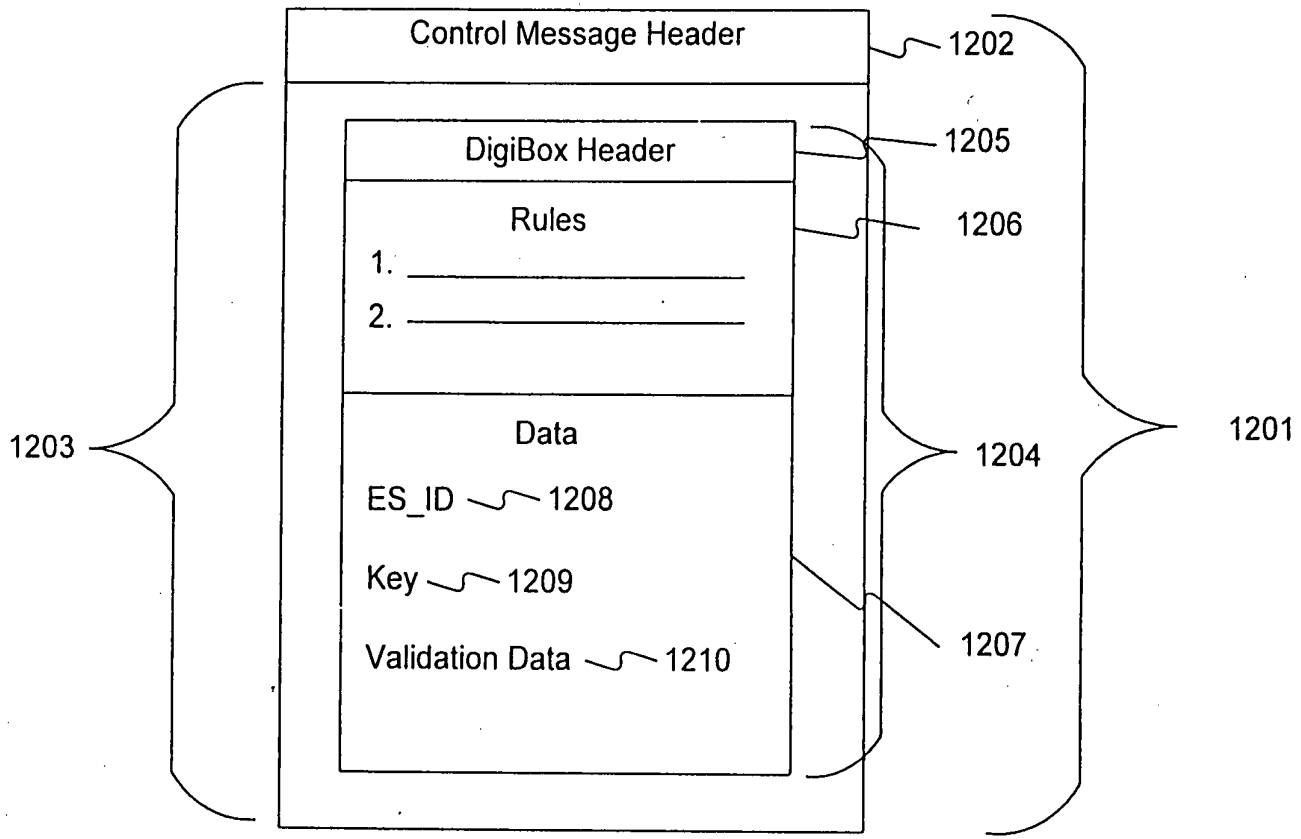

Control Message Header
1202
DigiBox Header
1205
Rules
1206
1.
2.
Data
1203
1204
1201
ES_ID
1208
Key
1209
1207
Validation Data
1210

Fig. 12

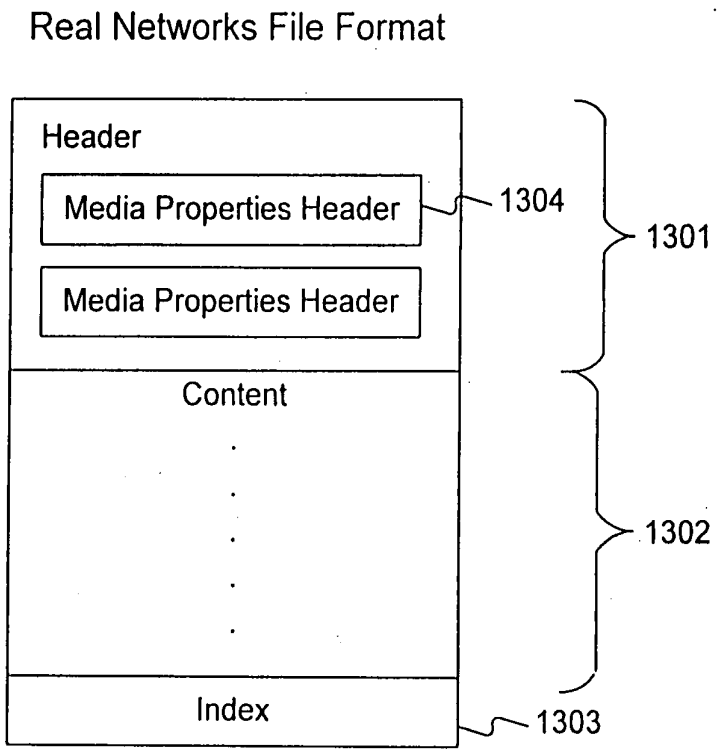

Real Networks File Format
Header
Media Properties Header
Media Properties Header
Content
Index
1304
1301
1302
1303

Fig. 13

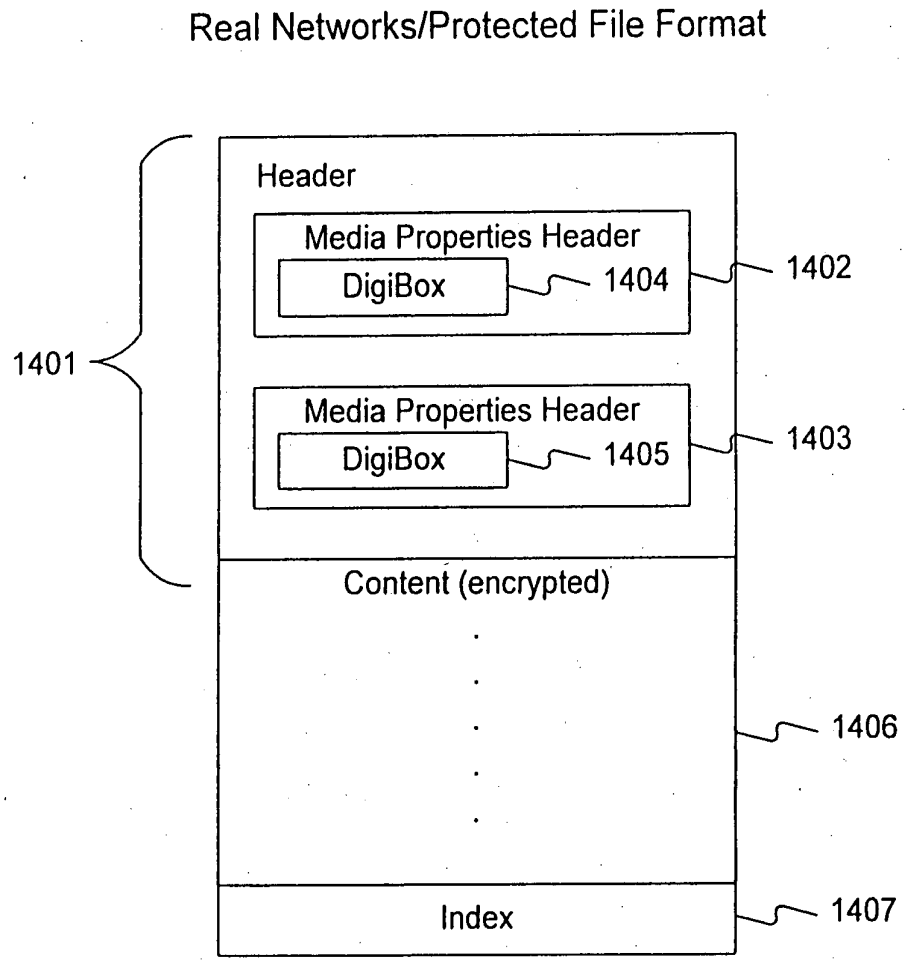

Real Networks/Protected File Format
Header
Media Properties Header
DigiBox
1404
1402
1401
Media Properties Header
DigiBox
1405
1403
Content (encrypted)
1406
Index
1407

Fig. 14

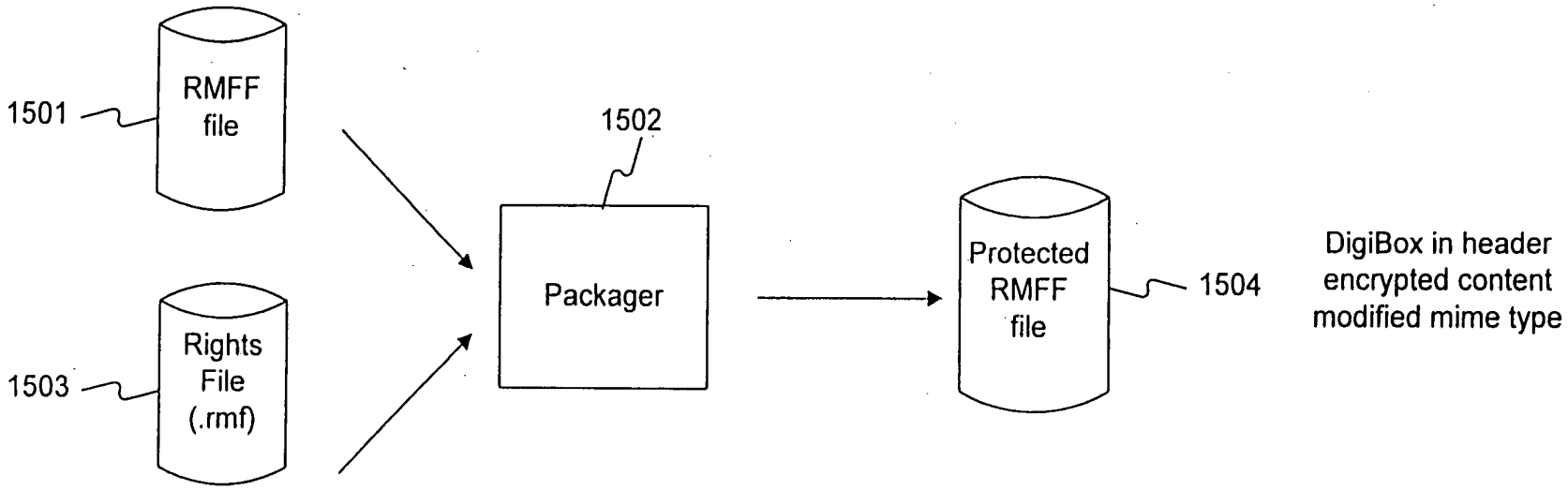

1501
RMFF file
1503
Rights File (.rmf)
1502
Packager
Protected RMFF file
1504
DigiBox in header
encrypted content
modified mime type

Fig. 15

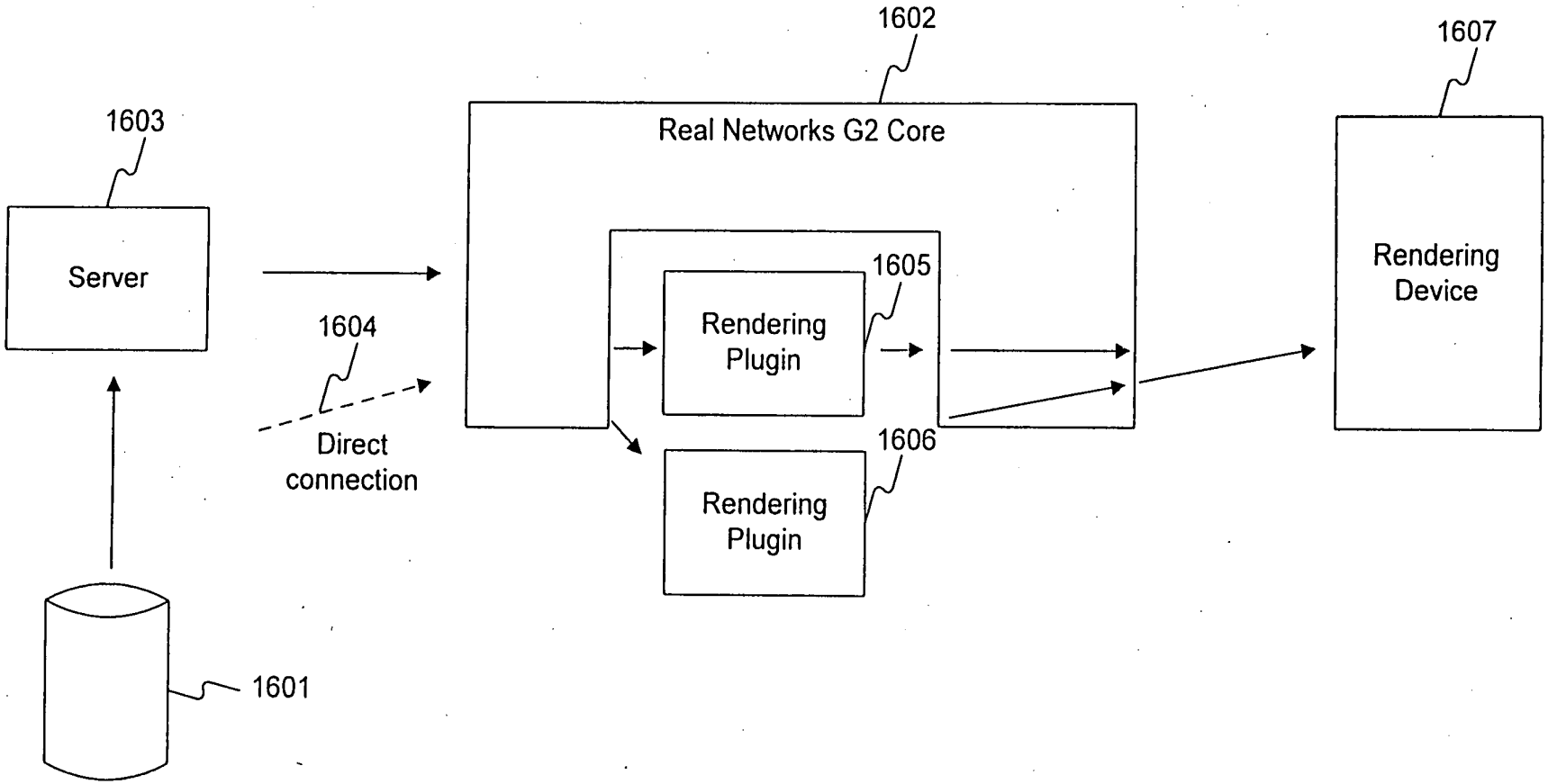

1602
1607
1603
Real Networks G2 Core
Server
1605
Rendering Plugin
Rendering Device
1604
Direct connection
1606
Rendering Plugin
1601

Fig. 16

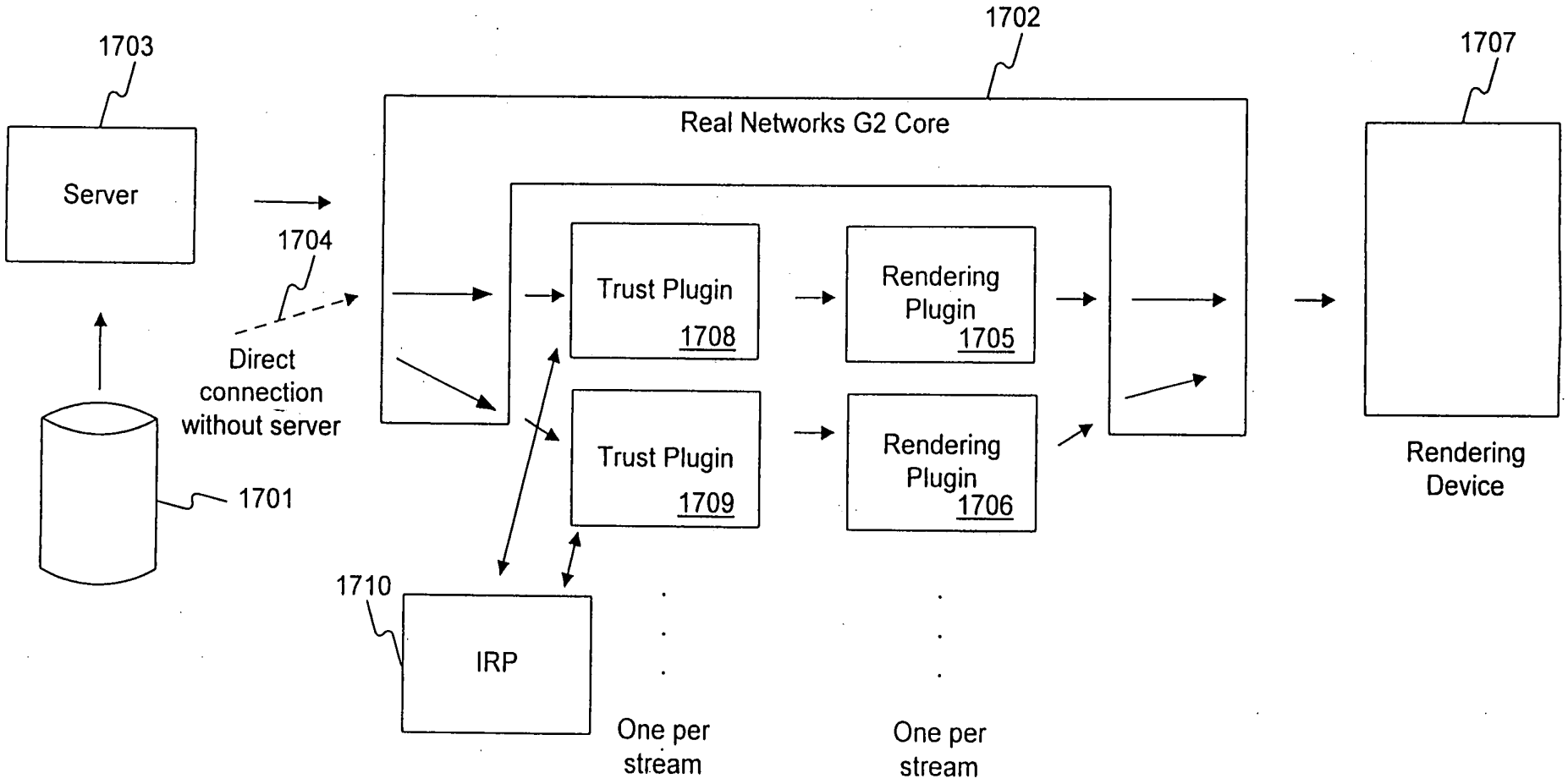

1703
Server
1704
Direct
connection
without server
1701
1702
Real Networks G2 Core
Trust Plugin
1708
Trust Plugin
1709
Rendering
Plugin
1705
Rendering
Plugin
1706
1710
IRP
One per
stream
One per
stream
1707
Rendering
Device

Fig. 17

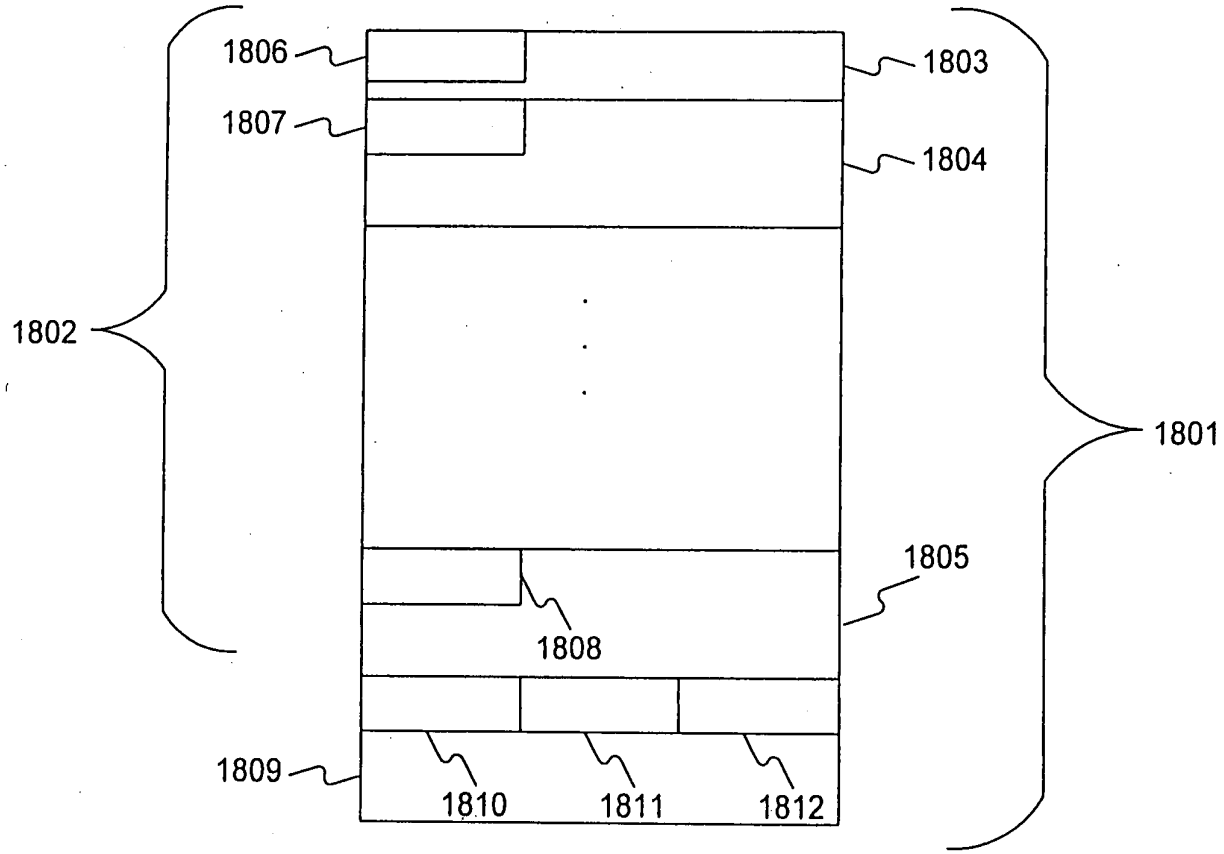
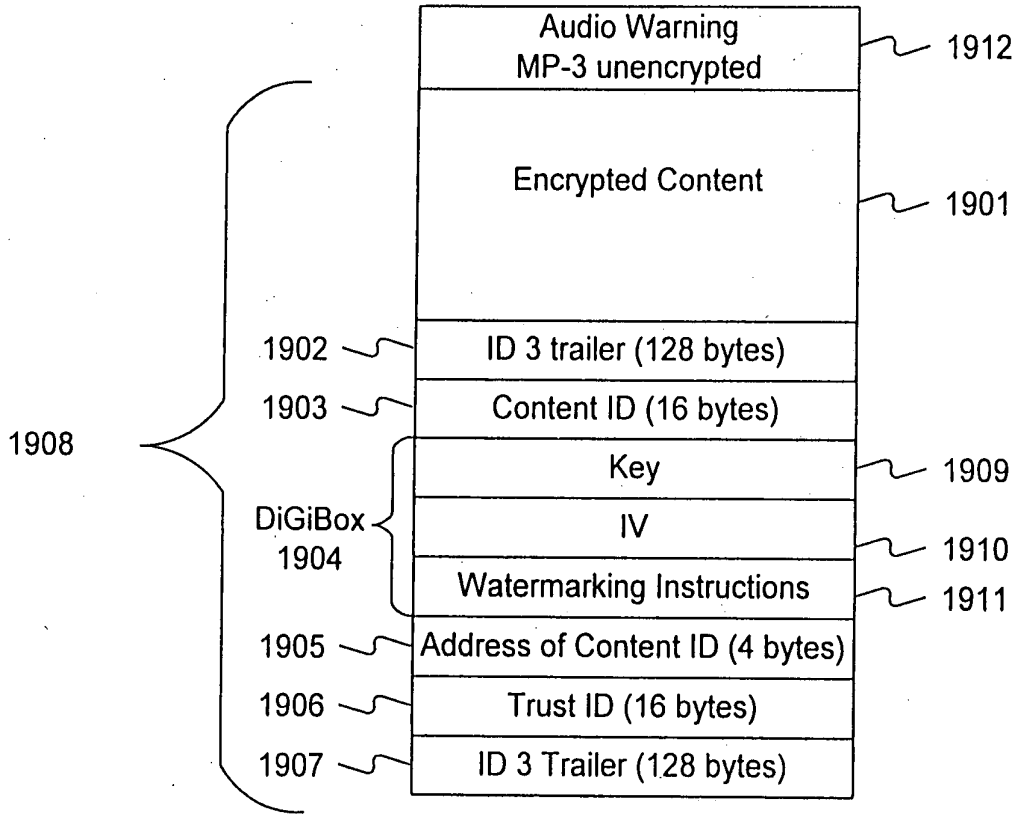



Fig. 18




**Protected MP3 Format**

**Fig. 19**

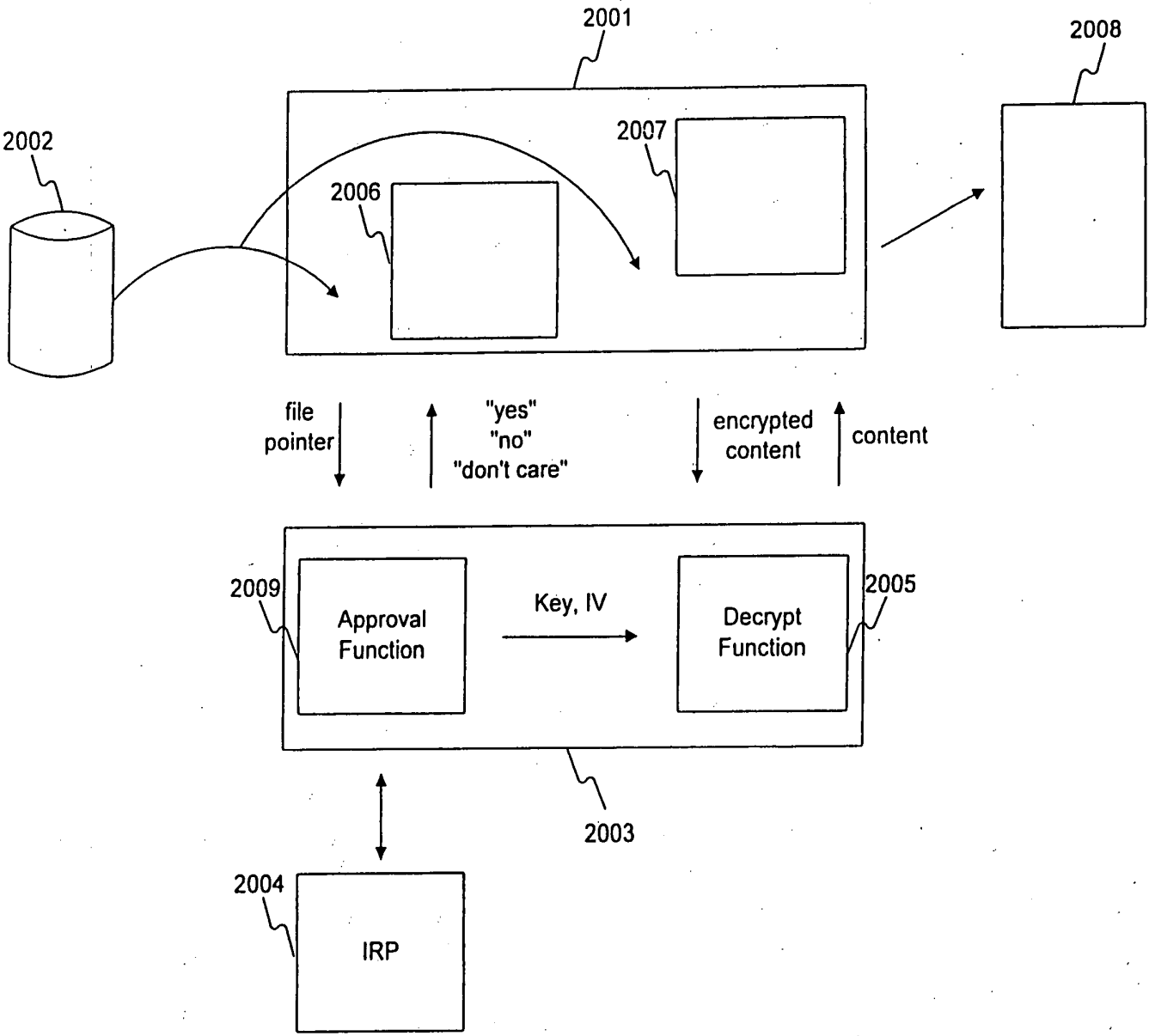



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Fig. 20

# Creating New MPEG-4 File

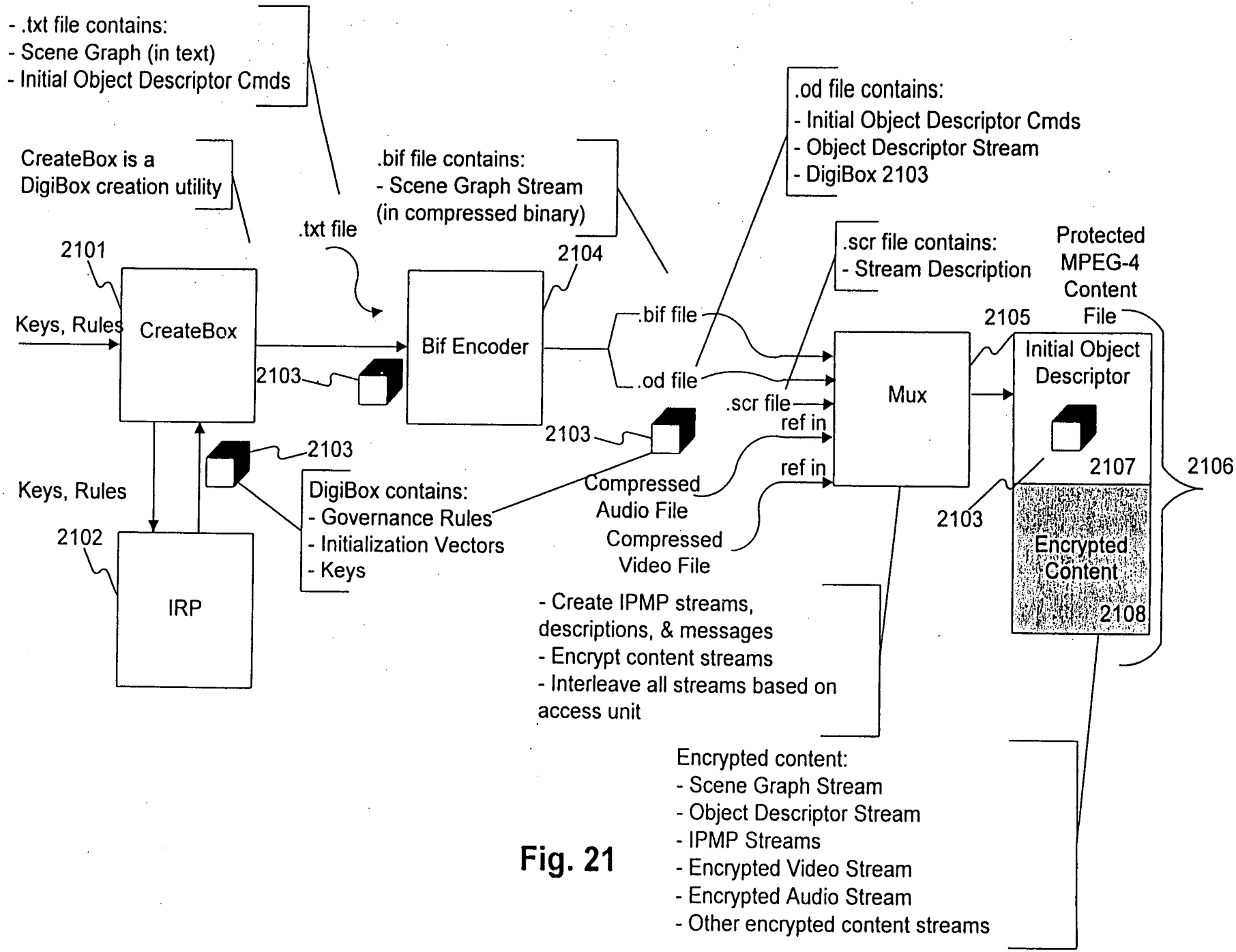


Fig. 21

Repackaging Existing MPEG-4 Files

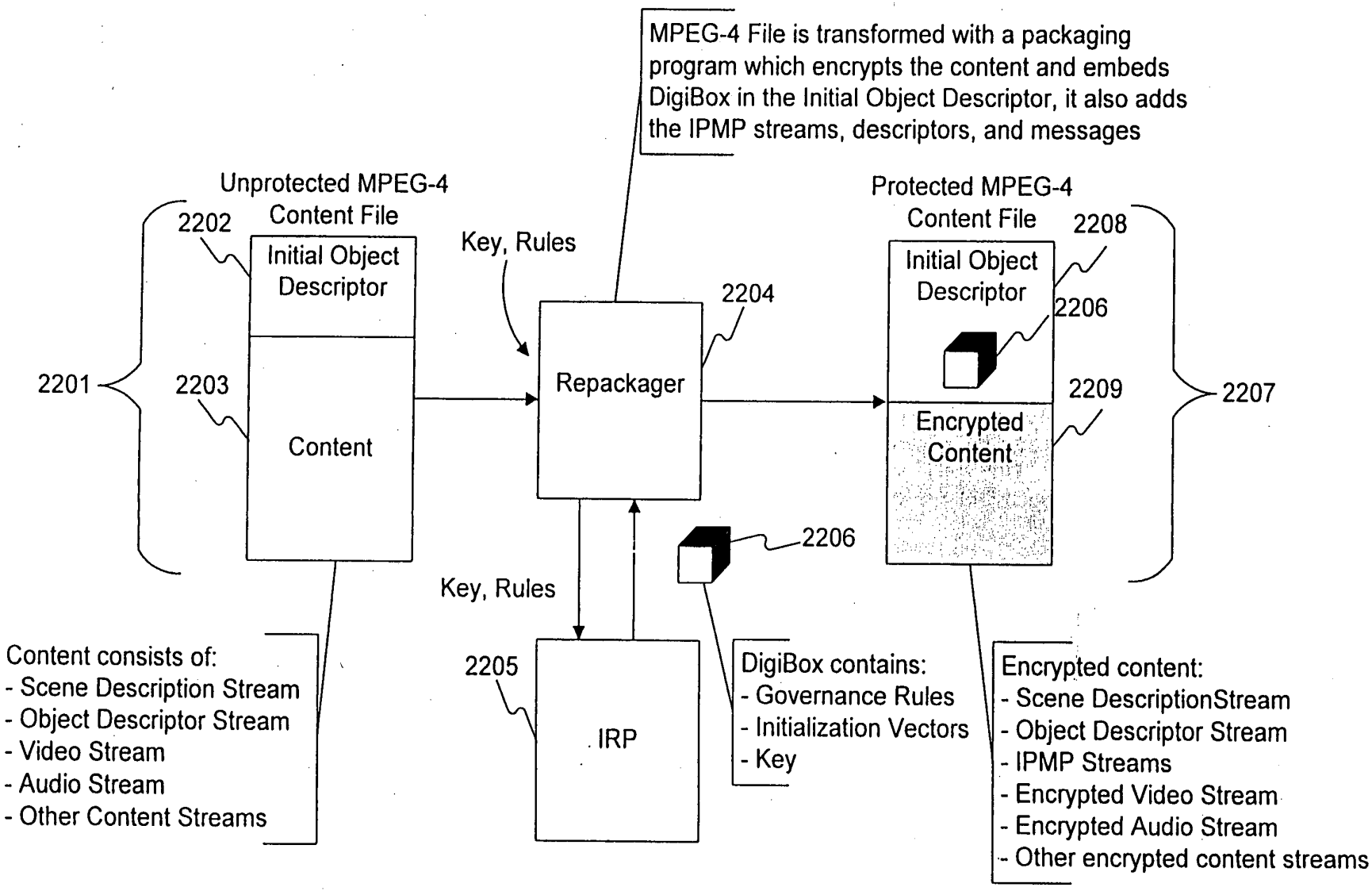


Fig. 22

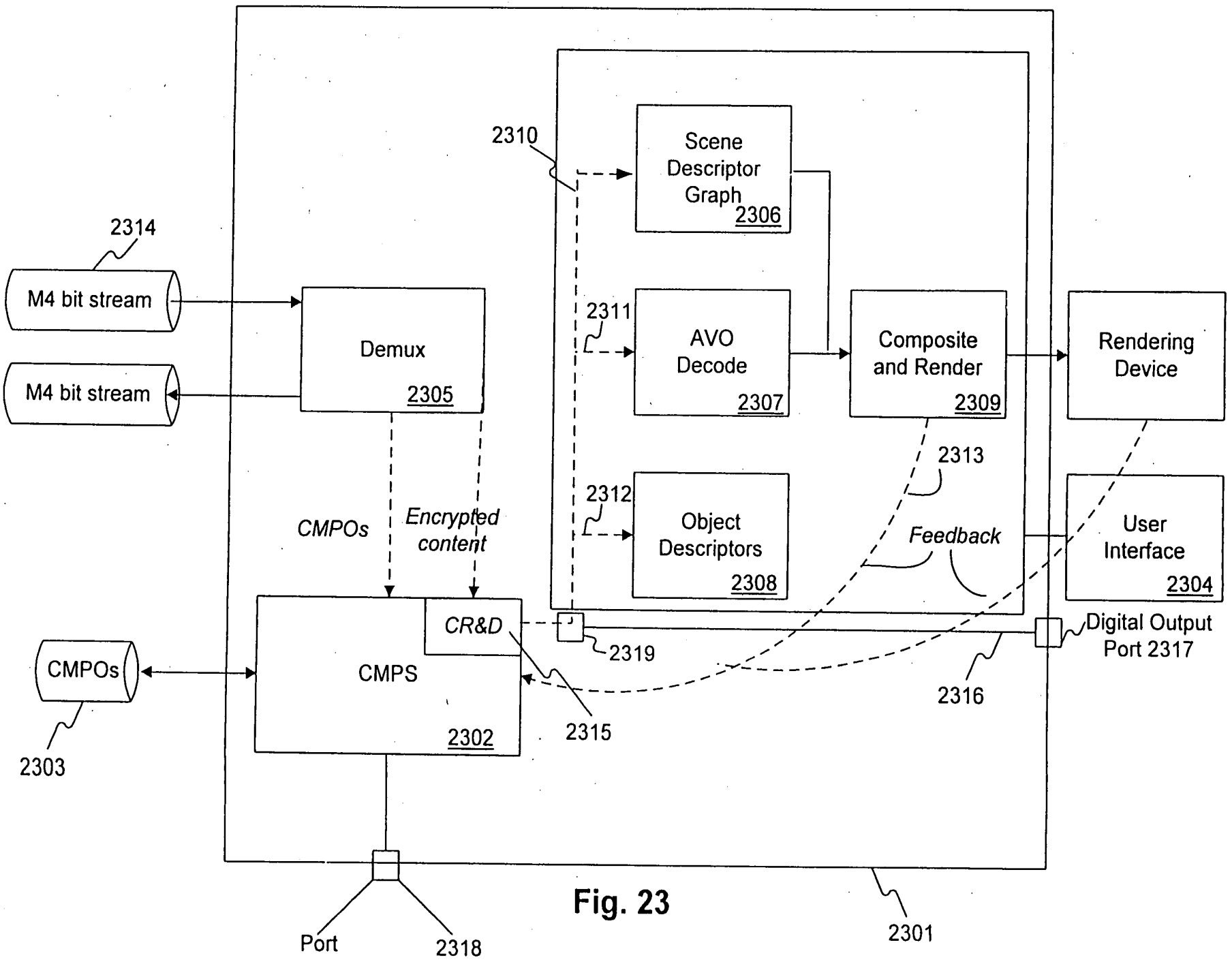
2310
Scene Descriptor Graph 2306
2314
M4 bit stream
M4 bit stream
Demux 2305
2311
AVO Decode 2307
Composite and Render 2309
Rendering Device
2313
2312
Object Descriptors 2308
CMPOs
Encrypted content
Feedback
User Interface 2304
CR&D
Digital Output Port 2317
2319
CMPOs
CMPS 2302
2316
2315
2303
Port
2318
2301

Fig. 23

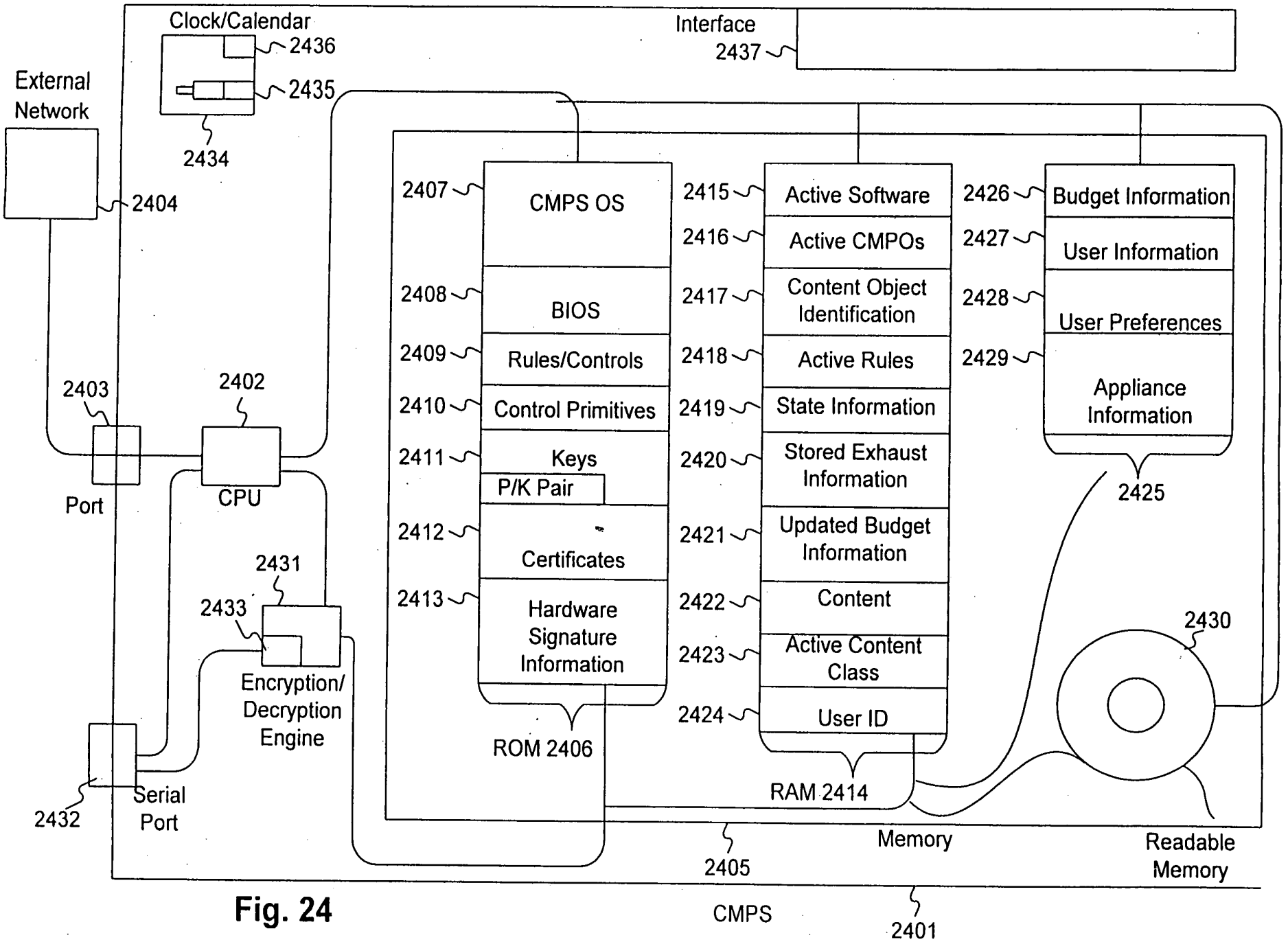


Fig. 24

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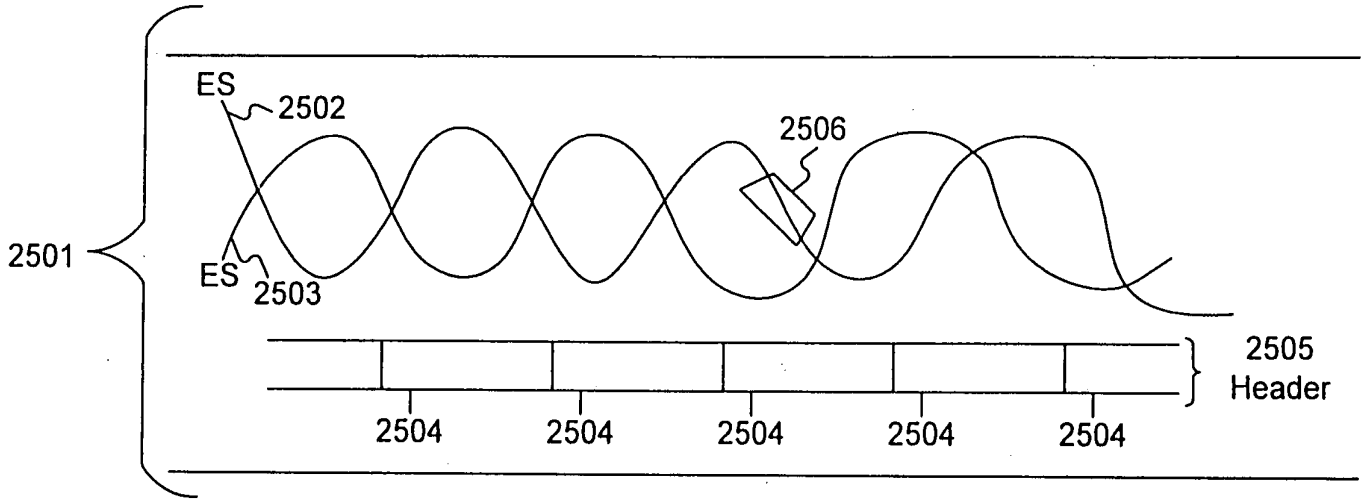
ES
2502
2506
2501
ES
2503
2505
Header
2504
2504
2504
2504
2504
Aggregate Stream

Fig. 25

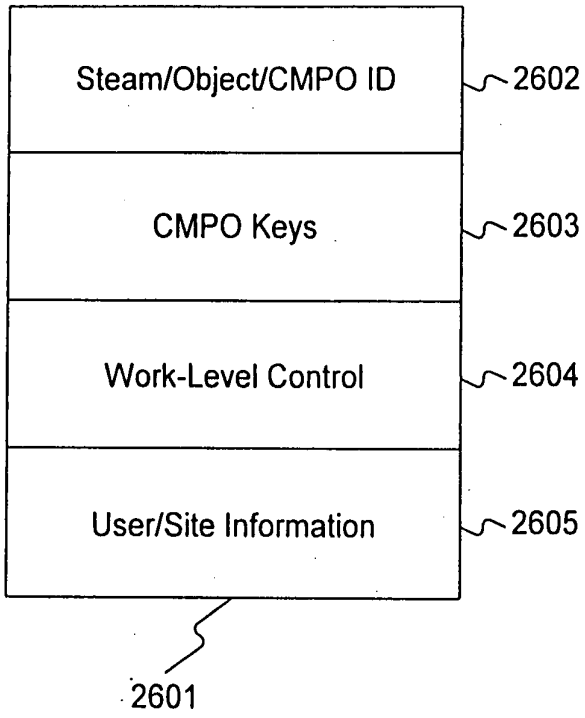
Steam/Object/CMPO ID
2602
CMPO Keys
2603
Work-Level Control
2604
User/Site Information
2605
2601

Fig. 26

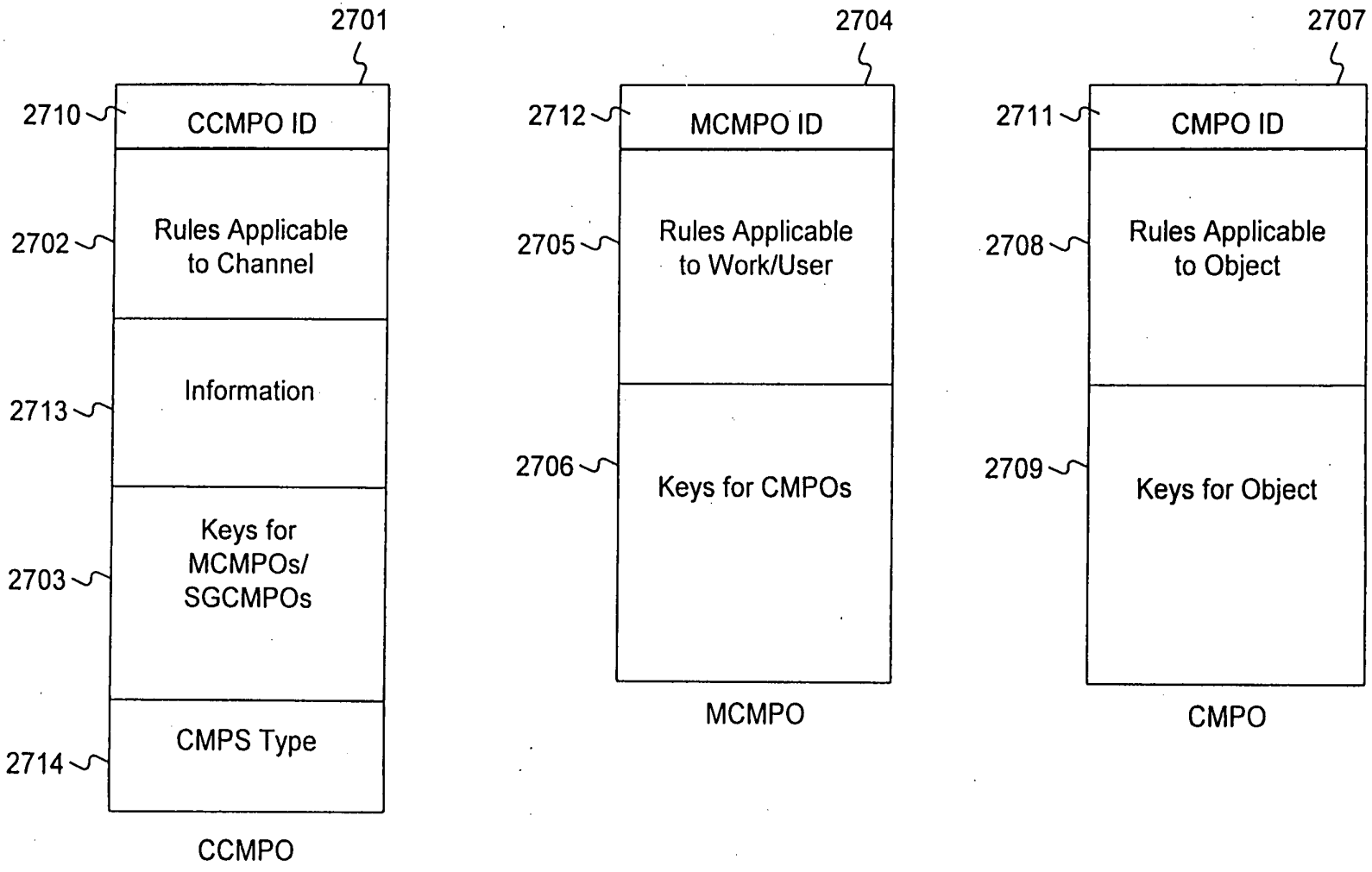
2701
2710
CCMPO ID
2702
Rules Applicable to Channel
2713
Information
2703
Keys for MCMPOs/ SGCMPOs
2714
CMPS Type
CCMPO
2704
2712
MCMPO ID
2705
Rules Applicable to Work/User
2706
Keys for CMPOs
MCMPO
2707
2711
CMPO ID
2708
Rules Applicable to Object
2709
Keys for Object
CMPO

Fig. 27

## CMPO Structure

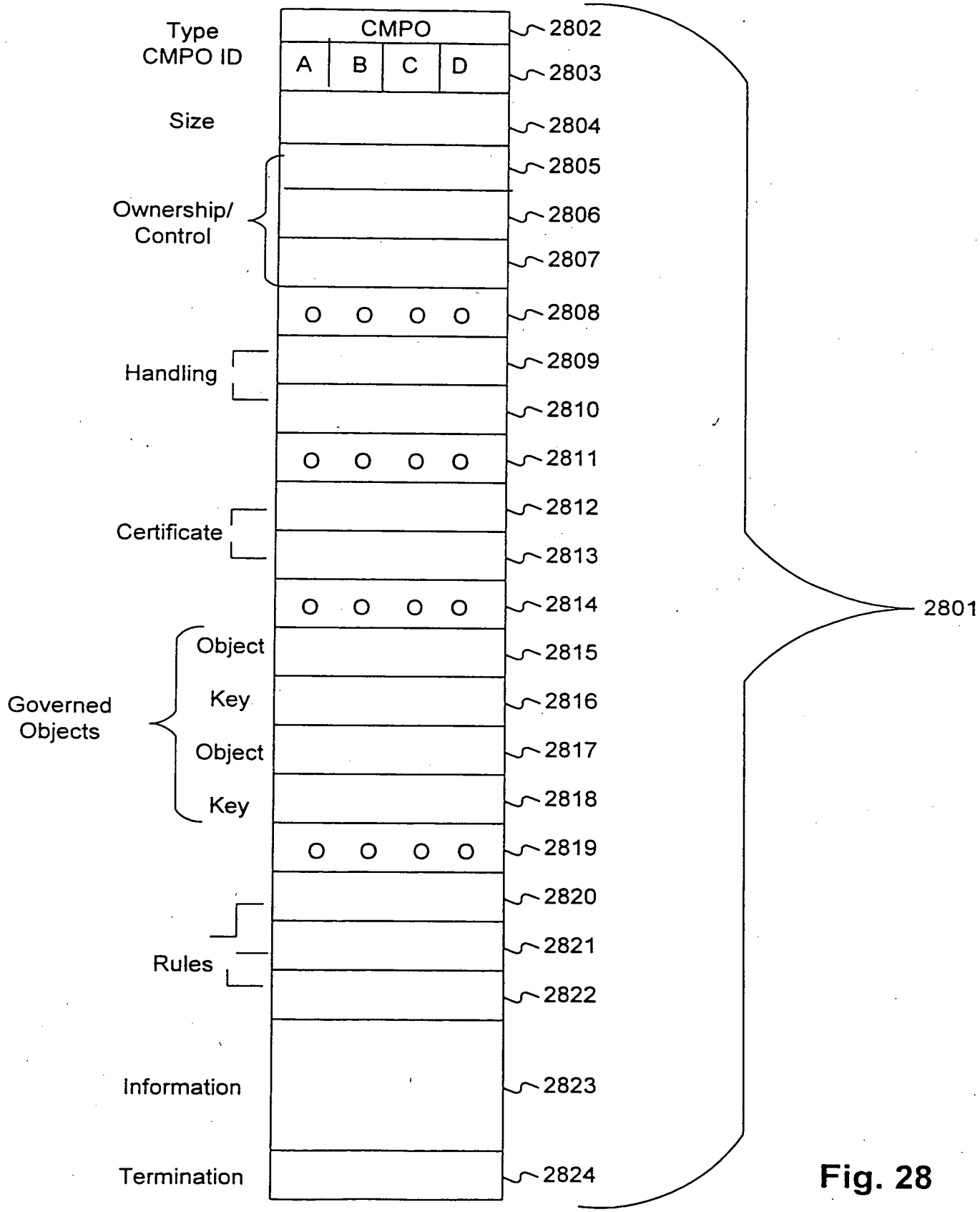


Fig. 28

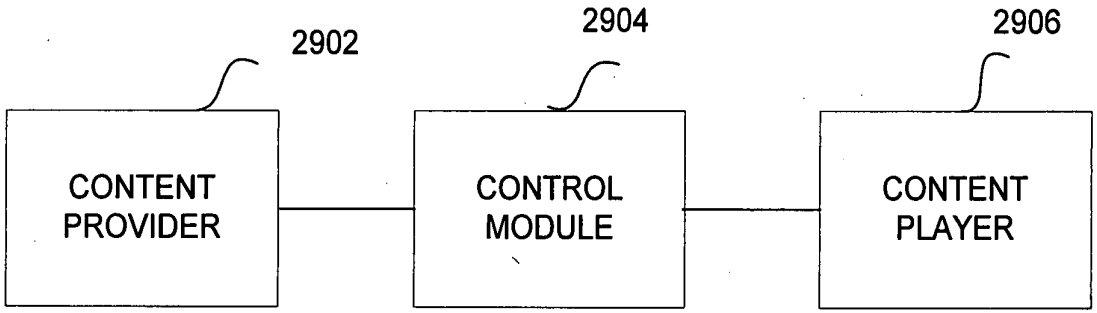
2902
2904
2906
CONTENT PROVIDER
CONTROL MODULE
CONTENT PLAYER

FIG. 29

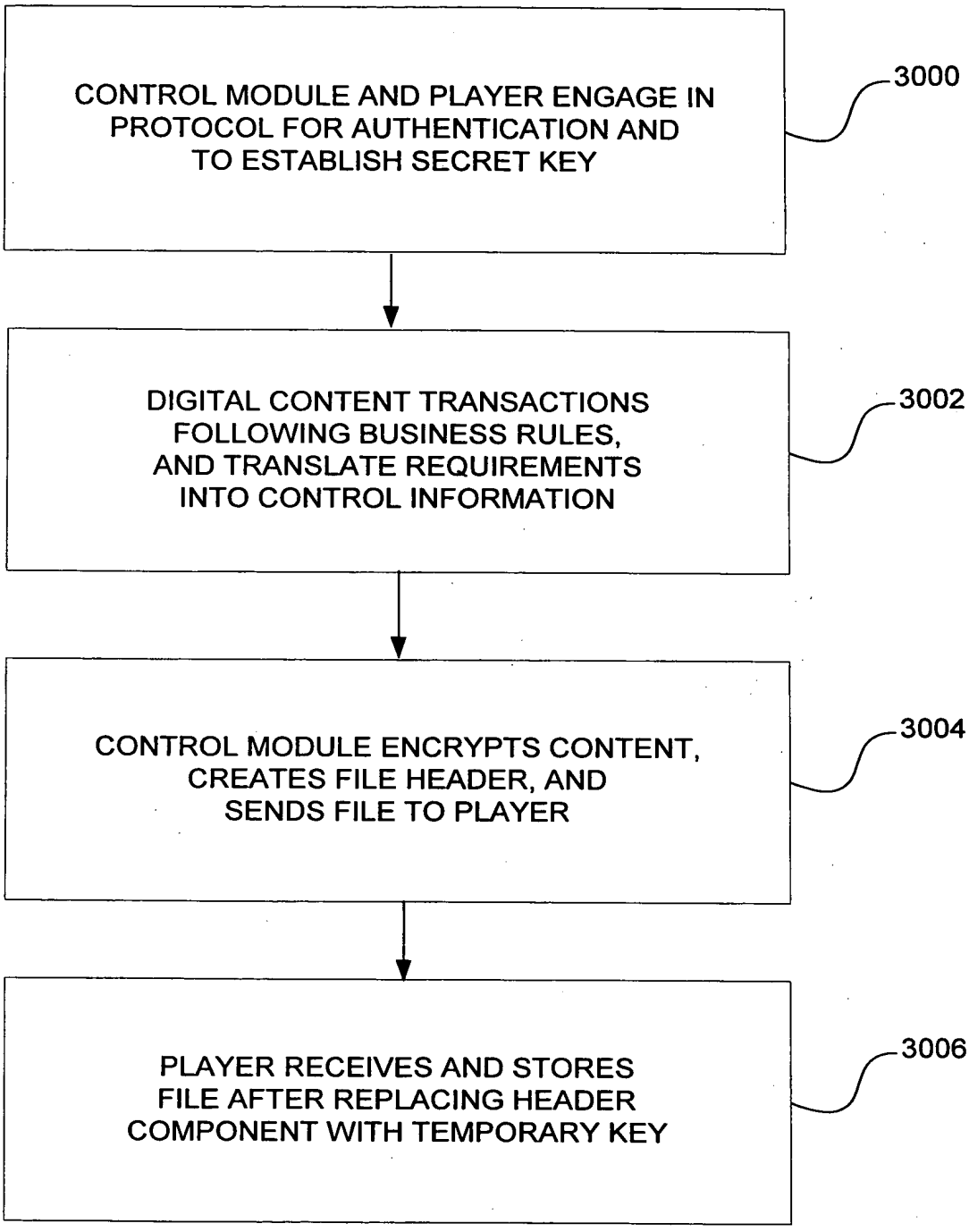
CONTROL MODULE AND PLAYER ENGAGE IN PROTOCOL FOR AUTHENTICATION AND TO ESTABLISH SECRET KEY
3000
DIGITAL CONTENT TRANSACTIONS FOLLOWING BUSINESS RULES, AND TRANSLATE REQUIREMENTS INTO CONTROL INFORMATION
3002
CONTROL MODULE ENCRYPTS CONTENT, CREATES FILE HEADER, AND SENDS FILE TO PLAYER
3004
PLAYER RECEIVES AND STORES FILE AFTER REPLACING HEADER COMPONENT WITH TEMPORARY KEY
3006

FIG. 30

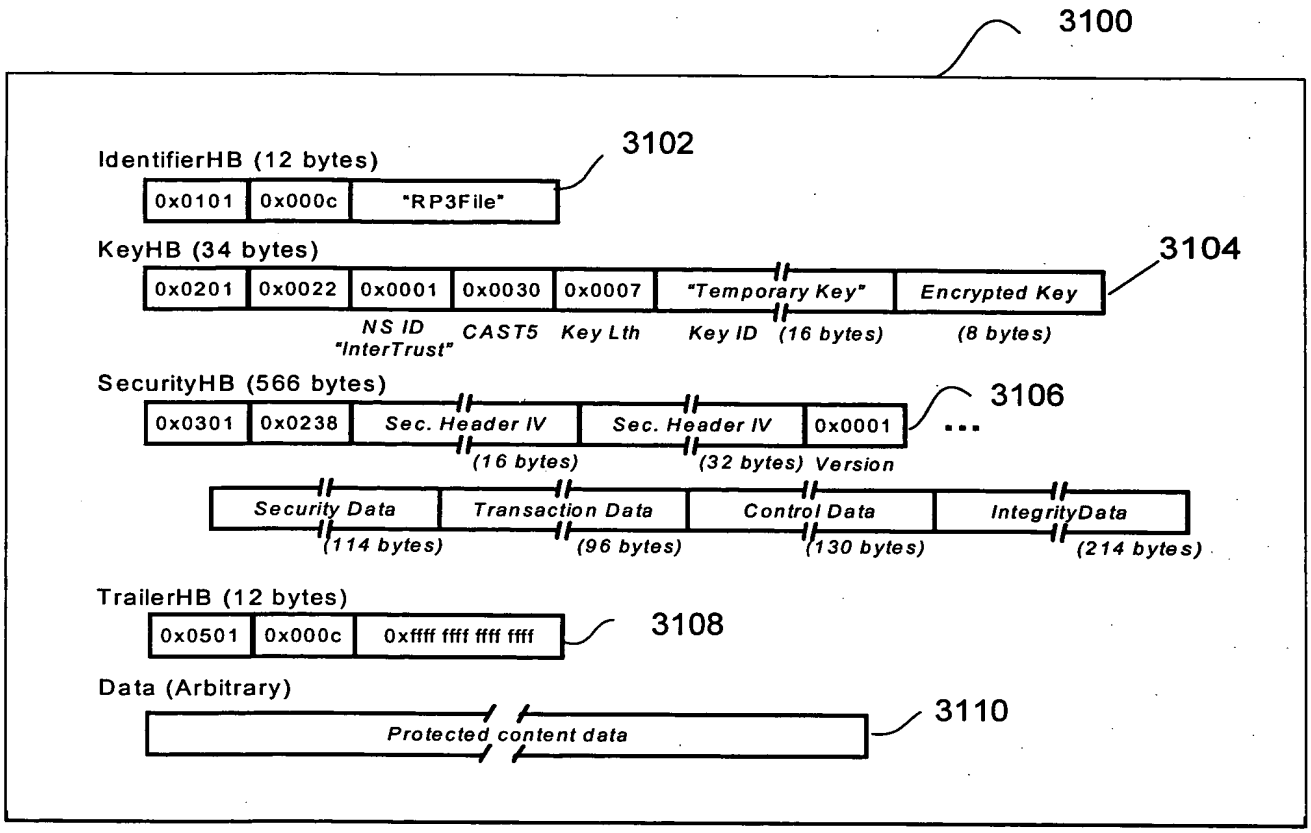
3100
IdentifierHB (12 bytes)
3102
0x0101
0x000c
"RP3File"
KeyHB (34 bytes)
3104
0x0201
0x0022
0x0001
0x0030
0x0007
"Temporary Key"
Encrypted Key
NS ID "InterTrust"
CAST5
Key Lth
Key ID
(16 bytes)
(8 bytes)
SecurityHB (566 bytes)
3106
0x0301
0x0238
Sec. Header IV
Sec. Header IV
0x0001
(16 bytes)
(32 bytes)
Version
Security Data
Transaction Data
Control Data
IntegrityData
(114 bytes)
(96 bytes)
(130 bytes)
(214 bytes)
TrailerHB (12 bytes)
3108
0x0501
0x000c
0xffff ffff ffff ffff
Data (Arbitrary)
3110
Protected content data

FIG. 31

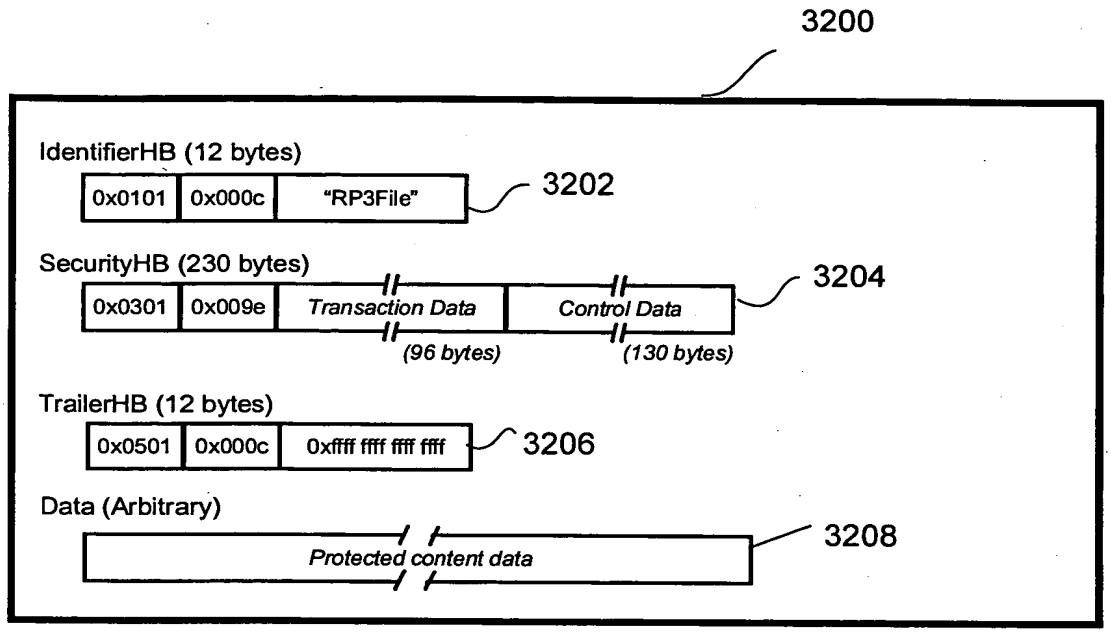
3200
IdentifierHB (12 bytes)
0x0101
0x000c
"RP3File"
3202
SecurityHB (230 bytes)
0x0301
0x009e
Transaction Data
Control Data
3204
(96 bytes)
(130 bytes)
TrailerHB (12 bytes)
0x0501
0x000c
0xffff ffff ffff ffff
3206
Data (Arbitrary)
Protected content data
3208

FIG. 32